

Docket No. 020133

Serial No. 10/632,411

REMARKS/ARGUMENTS

Before the Amendments, claims 1-49 were pending in the Application, and were rejected in the Office Action dated June 2, 2005 ("Office Action"). Claims 15 and 33 are amended to overcome informalities noted by the Examiner that do not affect claim scope. Claims 50-54 are added, and no claims are canceled. No new matter is added. Claims 1, 16, 24, 35 and 43 are the independent claims, and claims 1-54 are now present for examination. In light of the following remarks, reconsideration is respectfully requested.

35 U.S.C. § 103(a):

Claims 1-12, 15-21, 24-31, 35-46 and 49 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the cited portions of Leblanc et al., U.S. Patent No. 6,236,365 ("LeBlanc") in view of the cited portions of Takanashi et al., U.S. Publication No. 2001/0004384 ("Takanashi"). Claims 13, 14, 22, 23, 32-34, 47 and 48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Leblanc in view of Takanashi and further in view of the cited portions of Agazzi et al., U.S. Publication No. 2001/0000219 ("Agazzi"). The rejections are respectfully traversed.

A *prima facie* case of obviousness requires that the prior art references "teach or suggest all the claim limitations." MPEP § 2143. The Applicants assert that similar limitations from each independent claim are neither taught nor suggested in the cited references. Specifically, the cited portions of Takanashi do not teach: 1) coefficients of the *pilot filter*, or 2) coefficients *based on the determined velocity*, as required by the claims.

The Office Action concedes that LeBlanc "fail[s] to teach . . . determining one or more coefficients of the pilot filter based on the determined velocity . . ." (emphasis in original, Office Action, p. 2, sec. 2, ¶ 2). The Office Action specifically states that "Takanashi teaches . . . determining one or more coefficients of the pilot filter based on the determined velocity . . ." (Office Action, p. 2, sec. 2, ¶ 3 - p. 3, sec 2, ¶ 3). By these statements, the Office provides that the limitations must be found in Takanashi.

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1. Pilot Filter Coefficients:

Each claim generally relates to the *coefficients* of a *pilot filter*. Takanashi, however, fails to teach this limitation, as the reference provides generally for a tap coefficient monitoring unit of a waveform equalizer. Takanashi does not teach or suggest that the described tap coefficient monitoring unit 11 and weighting device 8 be used as a pilot filter.

Takanashi generally describes a tap coefficient monitoring unit 11 which monitors the tap coefficients of the equalizing filter unit (Takanashi, p. 8, ¶¶ [0077]-[0079]). The unit 11 monitors the tap coefficients of the components of preceding and delayed waves received by the FF filter 9 and FB filter 10, respectively (*Id.*, p. 9, ¶ [0083]). As noted below, this equalization operation is restarted with certain triggers specified in the reference. A new tap arrangement may be determined, the arrangement controlled by the tap arrangement control unit 8 (*Id.*, p. 9, ¶¶ [0089]-[0090]).

The present invention is, instead, directed at pilot filters. "In general, the pilot filter 336 filters the received pilot symbols, x_n , to provide pilot signal estimates, y_n , which are estimates of the response of the communication channel through which the multipath instance traveled" (Original Application, p. 11, ¶ [0047]). The requirements of a pilot filter are clearly distinct from those of a generalized waveform equalizer, as the pilot filter is generally directed at pilot signal recovery (*See generally Id.*, p. 11, ¶¶ [0046] - [0051]). Takanashi does not teach or suggest the use of the tap coefficient monitoring unit 11 and control unit 8 as a pilot filter.

2. Coefficients Based on Determined Velocity:

Each independent claim requires that the coefficients of the pilot filter be *based on* the determined velocity. Takanashi, however, does not contain this limitation, as the reference provides that when a preselected threshold speed is met, the equalizing steps are to be *restarted*. A coefficient is not *based on* velocity; instead, the equalizing process is merely *begun again*.

Takanashi suggests a "means for detecting a moving speed," wherein "when the moving speed is higher than a preselected threshold value, the tap arrangement . . . is changed so as to restart a starting step of equalizing steps" (Takanashi, p. 4, ¶ [0035]). Thus, when a speed limit is

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met, the equalization process for the reception signal is triggered. This "threshold value," or speed limit, is merely used to *initiate* the equalization process - the "detected" velocity is not directly factored into the equalization process.

Takanashi recognizes that the velocity of a mobile device impacts "reception performance," as velocity may cause "variation of the transfer path" (*Id.*, p. 12, ¶¶ [0105], [0107]). But the Takanashi solution is to equip an apparatus with a "means for detecting moving speed" and restart the equalization operation when a threshold is crossed (*Id.*, p. 12, ¶¶ [0106], [0107]). Takanashi specifies that "such a detector may be employed which reads a speed value of a speed meter mounted on an automobile" (*Id.*, p. 12, ¶ [0106]). Once the threshold is reached, "[t]he tap coefficient monitoring unit 11 is caused to be operated" (*Id.*, p. 12, ¶ [0107]). This method for triggering a starting step of the equalization operation falls far short of teaching the limitations of the claims.

The claims specify that coefficient of the pilot filter be based on the velocity of the device. The Specification teaches how the bandwidth of a pilot filter may be varied with velocity to provide improved performance (Original Application, p. 13, ¶¶ [0052]-[0053]). The Specification teaches how the output of the velocity estimator 426 is input into the coefficient selector unit 428 (*Id.*, p. 16, ¶ [0061]). The "coefficient selector unit 428 evaluates the . . . estimate of the WCD velocity and determines the desired set of coefficients" (*Id.*). Thus, the coefficients of the pilot filter are based on the velocity of the device, as claimed.

Using a speed limit to restart a coefficient monitoring unit clearly falls short of determining the coefficients of a pilot filter based on velocity. The threshold velocity in Takanashi is merely used to restart a beginning step in the equalization process, and simply does not suggest that the measured velocity be used to determine the coefficients. Takanashi, therefore, does not read on the limitations of the present claims.

Conclusion:

Claims 1, 16, 24, 35 and 43 are allowable for at least the foregoing reasons. Claims 2-15, 17-23, 25-34, 36-43 and 45-54 each depend from the independent claims, and these claims are believed allowable for at least the same reasons as given above.

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In view of the foregoing, the Applicants believe all claims now pending in this application are in condition for allowance. The Applicants, therefore, respectfully request that a timely Notice of Allowance be issued in this case.

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Respectfully submitted,

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